

7

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/530,879
Source: PU
Date Processed by STIC: 2/21/06

ENTERED

2



PCT

RAW SEQUENCE LISTING

DATE: 02/21/2006

PATENT APPLICATION: US/10/530,879

TIME: 12:44:06

Input Set : A:\2005-10-25 0825-0173PUS2.ST25.txt

Output Set: N:\CRF4\02212006\J530879.raw

5 <110> APPLICANT: GUSS, Bengt et al.
 7 <120> TITLE OF INVENTION: IMMUNIZATION OF NON-HUMAN MAMMALS AGAINST STREPTOCOCCUS EQUI
 9 <130> FILE REFERENCE: 0825-0173PUS2
 11 <140> CURRENT APPLICATION NUMBER: US 10/530,879
 12 <141> CURRENT FILING DATE: 2005-04-11
 14 <150> PRIOR APPLICATION NUMBER: PCT/SE2003/001587
 15 <151> PRIOR FILING DATE: 2003-10-10
 17 <160> NUMBER OF SEQ ID NOS: 28
 19 <170> SOFTWARE: PatentIn version 3.1
 21 <210> SEQ ID NO: 1
 22 <211> LENGTH: 180
 23 <212> TYPE: PRT
 24 <213> ORGANISM: Streptococcus equi
 26 <400> SEQUENCE: 1
 28 Met Ala Leu Asp Ala Thr Thr Val Leu Glu Pro Thr Thr Ala Phe Ile
 29 1 5 10 15
 32 Arg Glu Ala Val Arg Glu Ile Asn Gln Leu Ser Asp Asp Tyr Ala Asp
 33 20 25 30
 36 Asn Gln Glu Leu Gln Ala Val Leu Ala Asn Ala Gly Val Glu Ala Leu
 37 35 40 45
 40 Ala Ala Asp Thr Val Asp Gln Ala Lys Ala Ala Leu Asp Lys Ala Lys
 41 50 55 60
 44 Ala Ala Val Ala Gly Val Gln Leu Asp Glu Ala Arg Arg Glu Ala Tyr
 45 65 70 75 80
 48 Arg Thr Ile Asn Ala Leu Ser Asp Gln His Lys Ser Asp Gln Lys Val
 49 85 90 95
 52 Gln Leu Ala Leu Val Ala Ala Ala Ala Lys Val Ala Asp Ala Ala Ser
 53 100 105 110
 56 Val Asp Gln Val Asn Ala Ala Ile Asn Asp Ala His Thr Ala Ile Ala
 57 115 120 125
 60 Asp Ile Thr Gly Ala Ala Leu Leu Glu Ala Lys Glu Ala Ala Ile Asn
 61 130 135 140
 64 Glu Leu Lys Gln Tyr Gly Ile Ser Asp Tyr Tyr Val Thr Leu Ile Asn
 65 145 150 155 160
 68 Lys Ala Lys Thr Val Glu Gly Val Asn Ala Leu Lys Ala Lys Ile Leu
 69 165 170 175
 72 Ser Ala Leu Pro
 73 180
 76 <210> SEQ ID NO: 2
 77 <211> LENGTH: 597
 78 <212> TYPE: PRT
 79 <213> ORGANISM: Streptococcus equi
 81 <400> SEQUENCE: 2

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83 Met Lys Thr Lys Ser Phe Arg Lys Val Leu Thr Thr Ser Ala Thr Cys
84 1 5 10 15
87 Ile Val Leu Ala Thr Ser Phe Ala Gly Gly Thr Leu Arg Val Trp Ala
88 20 25 30
91 Glu Gln Leu Tyr Tyr Gly Trp Asn Asp Gly Thr Arg Gln Ser Ser Pro
92 35 40 45
95 Tyr Phe Leu Tyr Val Ser Pro Lys Asn Ala Pro Lys Arg Glu Leu Lys
96 50 55 60
99 Asp Glu Tyr Val Val Tyr Cys Phe Asn Lys Lys Leu Tyr Trp Pro Asp
100 65 70 75 80
103 Gln Trp Glu Ser Ile Tyr Ser Asn Phe Asn Asp Ile Arg Ser Pro Tyr
104 85 90 95
107 Asn Asp Leu Pro Val Tyr Glu Lys Lys Leu Gly Tyr Asp Gly Ile Phe
108 100 105 110
111 Lys Gln Tyr Ala Pro Asp Tyr Lys Lys Asp Ile Ser Asp Ile Ala Ser
112 115 120 125
115 Ala Leu Val Ala Val Leu Ser Asn Gly Tyr Pro Thr Asn Lys Ser Gln
116 130 135 140
119 Leu Ser Thr Ser Tyr His Leu Asn Asn Asp Ser Ser Arg Lys Val Thr
120 145 150 155 160
123 Gln Leu Ala Ile Trp Tyr Phe Ser Asp Ser Leu Thr Lys Glu Tyr Leu
124 165 170 175
127 Lys Asp Thr Gly Gly Tyr Asn Leu Asn Asp Met Glu Lys Lys Ala Leu
128 180 185 190
131 Asp Phe Leu Ile Ser Lys Gly Glu Asp Ser Lys Leu Lys Ser Glu Gln
132 195 200 205
135 Ser Asn Tyr Ser Leu Asp Ile Tyr Val Tyr Gln Ser Gly Gly His Asp
136 210 215 220
139 His Met Lys Asp Tyr Gln Asn Leu Leu Gly Ser Thr Leu Ile Pro Lys
140 225 230 235 240
143 Glu Pro Leu Lys Pro Gln Leu Gly Gly Phe Ser Gly His Asn Gly Asn
144 245 250 255
147 Gly Leu Ser Gly Leu Glu Gly Gly Ser Ser Gly Ser Gln Glu Thr Asn
148 260 265 270
151 Glu Asp Gly Lys Lys Gly Leu Ile Gly Phe His Gly Gly Leu Ser Gly
152 275 280 285
155 Ser Glu Gly Lys Arg Asp Pro Leu Pro Gly Leu Lys Gly Glu Ala Gly
156 290 295 300
159 Ala Pro Asp Thr Pro Gln Lys Pro Asn Asp Pro Leu Gln Gly Leu Glu
160 305 310 315 320
163 Gly Gly Asn Ser Pro Ile Val Glu Gln Asn Tyr Gly Ser Thr Glu Gly
164 325 330 335
167 Tyr His Gly Gln Ser Gly Ile Leu Glu Glu Thr Glu Asp Thr Asn Pro
168 340 345 350
171 Pro Gly Ile Ile Leu Gly Gly Ser Gly Asn Val Glu Thr His Glu Asp
172 355 360 365
175 Thr Arg Asn Pro His Leu Met Gly Ile Gly Gly Gly Leu Ala Gly Glu
176 370 375 380
179 Ser Gly Glu Thr Thr Pro Lys Pro Gly Gln Thr Gly Gly Gln Gly Pro

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180 385          390          395          400
183 Val Ile Glu Thr Thr Glu Asp Thr Gln Lys Gly Met Ser Gly Gln Ser
184          405          410          415
187 Gly Gly Thr Ile Glu Ser Glu Asn Thr Lys Lys Pro Glu Val Met Ile
188          420          425          430
191 Gly Gly Gln Gly Gln Thr Ile Glu Thr Thr Glu Asp Thr Gln Lys Gly
192          435          440          445
195 Met Ser Gly Gln Ser Gly Gly Thr Ile Glu Ser Glu Asp Thr Lys Lys
196          450          455          460
199 Pro Glu Val Met Ile Gly Gly Gln Gly Gln Ile Ile Asp Phe Ser Glu
200 465          470          475          480
203 Asn Thr Gln Ser Gly Met Ser Gly Gln Ser Gly Asp Thr Thr Val Ile
204          485          490          495
207 Glu Asp Thr Lys Lys Ser Glu Ile Ile Ile Gly Gly Gln Gly Gln Ile
208          500          505          510
211 Ile Asp Phe Ser Glu Asp Thr Gln Pro Gly Met Ser Gly Gln Ser Gly
212          515          520          525
215 Gly Thr Thr Ile Val Glu Asp Thr Lys Lys Pro Thr Pro Lys Pro Lys
216          530          535          540
219 Pro Ala Pro Ala Pro Ile Val Asn Asp Glu Lys Pro Asn Lys Gly Thr
220 545          550          555          560
223 His Leu Pro Gln Thr Ser Asp Met Lys Gln Leu Thr Leu Ser Ile Ile
224          565          570          575
227 Gly Ala Met Ser Met Leu Leu Val Leu Cys Leu Ser Leu Phe Lys Arg
228          580          585          590
231 Pro Ser Lys Lys Asp
232          595
235 <210> SEQ ID NO: 3
236 <211> LENGTH: 371
237 <212> TYPE: PRT
238 <213> ORGANISM: Streptococcus equi
240 <400> SEQUENCE: 3
242 Met Arg Lys Thr Glu Gly Arg Phe Arg Thr Trp Lys Ser Lys Lys Gln
243 1          5          10          15
246 Trp Leu Phe Ala Gly Ala Val Val Thr Ser Leu Leu Leu Gly Ala Ala
247          20          25          30
250 Leu Val Phe Gly Gly Leu Leu Gly Ser Leu Gly Gly Ser Ser His Gln
251          35          40          45
254 Ala Arg Pro Lys Glu Gln Pro Val Ser Ser Ile Gly Asp Asp Asp Lys
255          50          55          60
258 Ser His Lys Ser Ser Ser Asp Ser Met Val Ser Arg Pro Pro Lys Lys
259 65          70          75          80
262 Asp Asn Leu Gln Pro Lys Pro Ser Asp Gln Pro Thr Asn His Gln His
263          85          90          95
266 Gln Ala Thr Ser Pro Ser Gln Pro Thr Ala Lys Ser Ser Gly His His
267          100          105          110
270 Gly Asn Gln Pro Gln Ser Leu Ser Val Asn Ser Gln Gly Asn Ser Ser
271          115          120          125
274 Gly Gln Ala Ser Glu Pro Gln Ala Ile Pro Asn Gln Gly Pro Ser Gln

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275      130      135      140
278 Pro Leu Gly Leu Arg Gly Gly Asn Ser Ser Gly Ser Gly His His His
279 145      150      155      160
282 Gln Pro Gln Gly Lys Pro Gln His Leu Asp Leu Gly Lys Asp Asn Ser
283      165      170      175
286 Ser Pro Gln Pro Gln Pro Lys Pro Gln Gly Asn Ser Pro Lys Leu Pro
287      180      185      190
290 Glu Lys Gly Leu Asn Gly Glu Asn Gln Lys Glu Pro Glu Gln Gly Glu
291      195      200      205
294 Arg Gly Glu Ala Gly Pro Pro Leu Ser Gly Leu Ser Gly Asn Asn Gln
295      210      215      220
298 Gly Arg Pro Ser Leu Pro Gly Leu Asn Gly Glu Asn Gln Lys Glu Pro
299 225      230      235      240
302 Glu Gln Gly Glu Arg Gly Glu Ala Gly Pro Pro Ser Thr Pro Asn Leu
303      245      250      255
306 Glu Gly Asn Asn Arg Lys Asn Pro Leu Lys Gly Leu Asp Gly Glu Asn
307      260      265      270
310 Lys Pro Lys Glu Asp Leu Asp Gly Lys Gly Leu Ser Gly Glu Asn Asp
311      275      280      285
314 Glu Ser Pro Lys Leu Lys Asp Glu His Pro Tyr Asn His Gly Arg Arg
315      290      295      300
318 Asp Gly Tyr Arg Val Gly Tyr Glu Asp Gly Tyr Gly Gly Lys Lys His
319 305      310      315      320
322 Lys Gly Asp Tyr Pro Lys Arg Phe Asp Glu Ser Ser Pro Lys Glu Tyr
323      325      330      335
326 Asn Asp Tyr Ser Gln Gly Tyr Asn Asp Asn Tyr Gly Asn Gly Tyr Leu
327      340      345      350
330 Asp Gly Leu Ala Asp Arg Gly Gly Lys Arg Gly Tyr Gly Tyr Ser Tyr
331      355      360      365
334 Asn Pro Asp
335      370
338 <210> SEQ ID NO: 4
339 <211> LENGTH: 657
340 <212> TYPE: PRT
341 <213> ORGANISM: Streptococcus equi
343 <400> SEQUENCE: 4
345 Leu Lys Gln Leu Thr Lys Ile Val Ser Val Val Leu Leu Leu Val Phe
346 1      5      10      15
349 Thr Leu Ser Ala Ser Leu His Lys Val Arg Ala Thr Asn Leu Ser Asp
350      20      25      30
353 Asn Ile Thr Ser Leu Thr Val Ala Ser Ser Ser Leu Arg Asp Gly Glu
354      35      40      45
357 Arg Thr Thr Val Lys Val Ala Phe Asp Asp Lys Lys Gln Lys Ile Lys
358      50      55      60
361 Ala Gly Asp Thr Ile Glu Val Thr Trp Pro Thr Ser Gly Asn Val Tyr
362 65      70      75      80
365 Ile Gln Gly Phe Asn Lys Thr Ile Pro Leu Asn Ile Arg Gly Val Asp
366      85      90      95
369 Val Gly Thr Leu Glu Val Thr Leu Asp Lys Ala Val Phe Thr Phe Asn

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```

370          100          105          110
373 Gln Asn Ile Glu Thr Met His Asp Val Ser Gly Trp Gly Glu Phe Asp
374          115          120          125
377 Ile Thr Val Arg Asn Val Thr Gln Thr Thr Ala Glu Thr Ser Gly Thr
378          130          135          140
381 Thr Thr Val Lys Val Gly Asn Arg Thr Ala Thr Ile Thr Val Thr Lys
382 145          150          155          160
385 Pro Glu Ala Gly Thr Gly Thr Ser Ser Phe Tyr Tyr Lys Thr Gly Asp
386          165          170          175
389 Met Gln Pro Asn Asp Thr Glu Arg Val Arg Trp Phe Leu Leu Ile Asn
390          180          185          190
393 Asn Asn Lys Glu Trp Val Ala Asn Thr Val Thr Val Glu Asp Asp Ile
394          195          200          205
397 Gln Gly Gly Gln Thr Leu Asp Met Ser Ser Phe Asp Ile Thr Val Ser
398          210          215          220
401 Gly Tyr Arg Asn Glu Arg Phe Val Gly Glu Asn Ala Leu Thr Glu Phe
402 225          230          235          240
405 His Thr Thr Phe Pro Asn Ser Val Ile Thr Ala Thr Asp Asn His Ile
406          245          250          255
409 Ser Val Arg Leu Asp Gln Tyr Asp Ala Ser Gln Asn Thr Val Asn Ile
410          260          265          270
413 Ala Tyr Lys Thr Lys Ile Thr Asp Phe Asp Gln Lys Glu Phe Ala Asn
414          275          280          285
417 Asn Ser Lys Ile Trp Tyr Gln Ile Leu Tyr Lys Asp Gln Val Ser Gly
418          290          295          300
421 Gln Glu Ser Asn His Gln Val Ala Asn Ile Asn Ala Asn Gly Gly Val
422 305          310          315          320
425 Asp Gly Ser Arg Tyr Thr Ser Phe Thr Val Lys Lys Ile Trp Asn Asp
426          325          330          335
429 Lys Glu Asn Gln Asp Gly Lys Arg Pro Lys Thr Ile Thr Val Gln Leu
430          340          345          350
433 Tyr Ala Asn Asp Gln Lys Val Asn Asp Lys Thr Ile Glu Leu Ser Asp
434          355          360          365
437 Thr Asn Ser Trp Gln Ala Ser Phe Gly Lys Leu Asp Lys Tyr Asp Ser
438          370          375          380
441 Gln Asn Gln Lys Ile Thr Tyr Ser Val Lys Glu Val Met Val Pro Val
442 385          390          395          400
445 Gly Tyr Gln Ser Gln Val Glu Gly Asp Ser Gly Val Gly Phe Thr Ile
446          405          410          415
449 Thr Asn Thr Tyr Thr Pro Glu Val Ile Ser Ile Thr Gly Gln Lys Thr
450          420          425          430
453 Trp Asp Asp Arg Glu Asn Gln Asp Gly Lys Arg Pro Lys Glu Ile Thr
454          435          440          445
457 Val Arg Leu Leu Ala Asn Asp Ala Ala Thr Asp Lys Val Ala Thr Ala
458          450          455          460
461 Ser Glu Gln Thr Gly Trp Lys Tyr Thr Phe Thr Asn Leu Pro Lys Tyr
462 465          470          475          480
465 Lys Asp Gly Lys Gln Ile Thr Tyr Thr Ile Gln Glu Asp Pro Val Ala
466          485          490          495

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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/530,879

DATE: 02/21/2006
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Input Set : A:\2005-10-25 0825-0173PUS2.ST25.txt
Output Set: N:\CRF4\02212006\J530879.raw

Base Note:

One or more of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> <223> fields of each sequence which presents at least one n or Xaa.

Seq#:28; Xaa Pos. 3

Valid Line Length:

These rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:5; Line(s) 519

Seq#:25; Line(s) 1345

Seq#:26; Line(s) 1358

VERIFICATION SUMMARY

DATE: 02/21/2006

PATENT APPLICATION: US/10/530,879

TIME: 12:44:07

Input Set : A:\2005-10-25 0825-0173PUS2.ST25.txt

Output Set: N:\CRF4\02212006\J530879.raw

1448 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0